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CONTINUED INCREASES IN INDUSTRY PRODUCTIVITY IN 1984 REPORTED BY BLS

U.S. industries recorded substantial gains in productivity--as measured by output per employee hour--for the second year in a row, according to the Bureau of Labor Statistics of the U.S. Department of Labor. Among 85 industries for which 1984 data are available, about three quarters reported gains, many of which were in addition to the gains reported for 1983.

Among major manufacturing industries, both steel and autos reported continued gains--13.0 and 4.6 percent, respectively--but these gains were less than half the unusually substantial gains they reported in 1983--28.5 and 13.1 percent, respectively. Steel output grew 13.1 percent in 1984, due in part to continued demand from such key steel purchasers as motor vehicles, appliances, and construction. Employee hours grew only slightly and employment continued to decline, as the industry continued restructuring and closing plants with inefficient capacity. In the motor vehicle industry, output was up 21.1 percent in 1984 as demand for all types of motor vehicles expanded, while hours increased 15.8 percent.

Other important manufacturing industries with large gains in 1984 included steel foundries with a productivity increase of 11.4 percent, and gray iron foundries with 9.2 percent in 1984. Output of steel castings was up 29.0 percent, and output of gray iron castings grew 19.4 percent in 1984, as demand from the automobile, construction, and railroad industries expanded. The tire industry posted an 11.3 percent productivity gain in 1984, on top of a 6.2 percent gain in 1983. Output grew by 14.3 percent in 1984 as demand was up for both original equipment and replacement tires while hours grew only slightly. In petroleum refining, productivity grew 10.9 percent in 1984 after gaining 3.0 percent in 1983. Refinery output increased for the first time since 1978, growing 4.6 percent in 1984, while hours declined as small refineries continued to close. Other significant manufacturing industries with large productivity gains included malt beverages (10.5 percent), metal cans and primary aluminum (10.1 percent), and household cooking equipment (9.7 percent).

A few manufacturing industries registered productivity declines in 1984. These included hardwood veneer and plywood (-4.8 percent), structural clay products (-3.9 percent), pharmaceutical preparations (-3.4 percent), and folding paperboard boxes (-2.6 percent).

All of the mining industries had productivity gains in 1984. Coal mining, the largest mining industry, posted a gain of 10.1 percent in 1984, on top of a 14.2 percent gain in 1983. Coal output was up 14.4 percent in 1984 in anticipation of a strike which did not occur, while hours grew 3.9 percent. Productivity in iron mining (usable ore) increased 25.3 percent, following a 41.1 percent gain the previous year. Output was up 36.9 percent in 1984 as demand increased from the steel industry, while hours grew 9.3 percent. Copper mining (recoverable metal) had a productivity gain of 17.6 percent, on top of a 12.7 percent increase in 1983. Output was up only 5.1 percent in 1984, due to low copper prices, while hours dropped 10.6 percent, as only the most efficient mines were operating. The non-metallic minerals industry had a productivity gain of 1.9 percent. Output grew 8.7 percent in this industry, due to the expansion of construction activity, while hours were up 6.6 percent.

Most transportation and utility industries also recorded productivity gains. In railroads (revenue traffic), productivity was up 6.7 percent following the 22.5 percent gain registered in the previous year. Railroad output grew 9.2 percent in 1984 as shipments of coal, motor vehicles, construction materials, and chemicals were up signficantly, while hours increased 2.3 percent. Productivity grew 3.3 percent in air transportation, as compared with a 9.9 percent gain in the previous year. Air traffic grew significantly in 1984, resulting in a 7.9 percent gain in output. In petroleum pipelines, productivity was up a high 11.1 percent, as output grew and hours continued to fall. Electric utility productivity was up 3.5 percent, as output grew 5.3 percent and hours grew 1.8 percent. The gas utilities industry registered its first productivity gain since 1979 (3.2 percent), with output growing 2.5 percent and hours dropping 0.7 percent.

Productivity changes were mixed among trade and service industries. The hotel and motel industry registered the highest gain at 7.7 percent. Output was up 15.2 percent in this industry due to the continuation of the business recovery as well as a strong summer vacation period, while employee hours grew 7.0 percent. Apparel and accessory stores also registered a good productivity increase, up 6.0 percent. Output increased 9.6 percent in 1984, as favorable economic and credit conditions aided clothing sales, while hours grew 3.4 percent. In laundries and cleaning services, productivity grew 3.3 percent, based on a gain in output of 8.2 percent and an increase in hours of 4.8 percent. Productivity gains were recorded in drugstores (1.8 percent) and gasoline stations (0.4 percent). On the other hand,there were productivity declines in several of the service industries. The beauty and barber shop industry had a substantial 8.4percent decline. Productivity also fell 2.1 percent in eating and drinking places. While output was up 3.8 percent in 1984, hours increased even more, resulting in the productivity falloff. Productivity dropped 1.0 percent in retail food stores. New car dealers had a small productivity decline of 0.1 percent. Output was up significantly at 10.8 percent; however, hours grew slightly more, resulting in the productivity decline.

The attached table presents indexes of output per employee hour for the selected industries for the last 7 years. Although the output per employee hour measures relate output to the hours of all employees engaged in each industry, they do not measure only the specific contributions of labor, capital, or any other single factor of production. Rather, they reflect the joint effects of many influences, including new technology, capital investment, the level of output, capacity utilization, energy use, and managerial skills, as well as the skills and efforts of the work force.

Additional data for these measures, such as average rates of change for all the components of the measures back to 1947 for many industries, are available from the BLS upon request. The forthcoming bulletin, "Productivity Measures for Selected Industries, 1958-1984," will include data back to 1958 for many industries. Data on output per hour of all persons and related cost measures for the nonfarm business sector, private business, manufacturing, and nonfinancial corporations are reported in the quarterly BLS news release, "Productivity and Costs."

Indexes of Output per employee-hour 1/ in selected industries
1978-84 and percent changes 1982-83, 1983-84
(1977 = 100)

SIC Code	Industry	1978	1979	1980	1981	1982	1983	1984 2/	Percent Change	
									1982-83	1983-84
	Mining									
1011	Iron mining, crude ore	115.5	122.7	124.7	132.8	100.9	139.0	175.2	37.8	26.0
1011	Iron mining, usable ore	117.8	122.8	123.2	130.6	98.2	138.6	173.6	41.1	25.3
1021	Copper mining, crude ore	109.7	109.1	99.5	102.0	106.4	129.9	140.3	22.1	8.0
1021	Copper mining, recoverable metal	107.7	98.2	91.6	97.7	116.2	130.9	153.9	12.7	17.6
111,21	Coal mining	106.4	99.4	112.5	122.2	119.2	136.1	149.9	14.2	10.1
121	Bituminous coal and lignite mining	106.7	99.6	112.6	122.7	120.0	136.9	151.1	14.1	10.4
14	Nonmetallic minerals, except fuels	104.8	102.7	96.5	94.7	89.3	98.1	100.0	9.9	1.9
142	Crushed and broken stone	108.3	106.9	101.3	96.7	94.1	103.9	106.6	10.4	2.6
	Manufacturing									
2011,13	Red meat products	98.8	101.7	107.0	107.9	112.3	116.2	115.1	3.5	-0.9
2011	Meat packing plants	100.9	104.6	108.9	113.9	119.5	124.0	123.4	3.8	-0.5
2013	Sausages and other prepared meats	93.8	95.0	102.3	95.0	96.5	99.8	98.3	3.4	-1.5
2026	Fluid milk	108.6	117.3	126.5	131.6	140.0	147.1	3/	5.1	3/
203	Preserved fruits and vegetables	104.1	98.9	100.8	99.2	107.9	110.4	3/	2.3	3/
2033	Canned fruits and vegetables	104.0	101.9	101.4	100.7	108.6	112.2	3/	3.3	3/
204	Grain mill products	100.2	101.0	105.3	110.9	121.0	124.7	3/	3.1	3/
2041,45	Flour (inc. flour mixes) & other grains	98.0	95.1	98.1	99.1	112.3	116.4	3/	3.7	3/
2041	Flour and other grain mill products	100.9	97.3	94.8	96.7	104.1	108.1	111.2	3.8	2.9
2043	Cereal breakfast foods	101.5	107.3	105.9	109.3	115.0	118.7	3/	3.2	3/
2044	Rice milling	92.7	96.3	111.8	117.9	104.5	101.5	3/	-2.9	3/
2046	Wet corn milling	104.0	105.7	121.0	137.5	138.8	156.6	3/	12.8	3/
2047,48	Prepared feeds for animals and fowls	100.4	101.2	105.0	110.7	124.9	126.9	3/	1.6	3/
205	Bakery products	97.6	95.0	93.7	96.2	103.2	106.6	3/	3.3	3/
2061,62,63	Sugar	98.3	103.1	100.1	98.8	90.4	98.6	105.2	9.1	6.7
2061,62	Raw and refined cane sugar	98.1	101.5	99.3	98.8	87.6	100.0	99.1	14.2	-0.9
2063	Beet sugar	98.3	104.6	102.1	98.7	94.8	94.6	117.4	-0.2	24.1
2082	Malt beverages	101.1	109.9	116.0	118.3	122.6	131.3	145.1	7.1	10.5
2086	Bottled and canned soft drinks	104.5	105.6	109.8	114.3	118.3	127.0	138.0	7.4	8.7
2111,21,31	Total tobacco	102.7	102.1	102.1	100.5	100.7	105.1	106.1	4.4	1.0
2111,31	Cigarettes, chewing and smoking tobacco	104.0	102.4	101.8	99.6	99.5	104.1	105.1	4.6	1.0
2121	Cigars	97.0	101.4	106.4	107.3	111.4	112.3	114.8	0.8	2.2
2251,52	Hosiery	102.1	107.9	107.4	122.0	114.2	118.0	123.4	3.3	4.6
2281	Nonwool yarn mills	104.2	103.8	99.7	103.1	118.2	127.9	134.6	8.2	5.2
2421	Sawmills and planing mills, general	102.3	98.3	104.2	107.9	115.1	125.0	125.6	8.6	0.5
2431	Millwork	90.3	92.2	93.6	96.4	86.1	86.3	3/	0.2	3/
2434	Wood kitchen cabinets	97.8	92.1	98.2	94.8	96.2	93.5	3/	-2.8	3/
2435,36	Veneer and plywood	101.7	94.5	102.8	106.9	114.4	120.3	120.3	5.2	4/
2435	Hardwood veneer and plywood	100.7	97.8	104.1	100.3	101.4	107.2	102.1	5.7	-4.8
2436	Softwood veneer and plywood	102.1	93.4	102.7	111.8	122.1	127.9	131.3	4.8	2.7
251	Household furniture	104.7	101.5	99.9	103.0	104.7	109.9	115.2	5.0	4.8
2511,17	Wood household furniture	105.0	101.7	97.3	97.4	98.3	104.1	3/	5.9	3/
2512	Upholstered household furniture	108.8	105.1	102.3	110.5	115.9	121.4	3/	4.7	3/
2514	Metal household furniture	97.7	90.2	93.6	98.7	107.5	108.4	3/	0.8	3/
2515	Mattresses and bedsprings	101.5	102.8	112.1	114.0	104.3	108.3	3/	3.8	3/
252	Office furniture	100.0	107.2	112.1	108.8	107.4	110.6	3/	3.0	3/
2521	Wood office furniture	100.7	110.8	109.2	92.9	90.3	92.9	3/	2.9	3/
2522	Metal office furniture	99.8	104.5	113.9	114.0	116.6	120.2	3/	3.1	3/
2611,21,31,61	Paper, paperboard and pulp mills	103.2	105.4	105.2	104.4	106.0	114.3	118.0	7.8	3.2
2643	Paper and plastic bags	100.1	98.0	94.6	92.3	95.3	102.2	3/	7.2	3/
2651	Folding paperboard boxes	104.3	104.3	101.3	104.4	104.2	105.1	102.4	0.9	-2.6
2653	Corrugated and solid fiber board boxes	103.4	106.9	111.0	109.8	111.9	114.0	116.9	1.9	2.5
2823,24	Synthetic fibers	105.2	115.0	115.7	120.9	103.6	125.7	125.4	21.3	-0.2
2834	Pharmaceutical preparations	98.6	109.2	103.6	104.2	107.0	116.3	112.3	8.7	-3.4
2841	Soaps and detergents	105.6	104.8	109.6	107.4	100.9	98.2	3/	-2.7	3/
2844	Cosmetics and other toiletries	99.7	94.0	83.6	76.1	84.0	86.0	3/	2.4	3/
2851	Paints and allied products	104.3	104.8	100.8	99.8	106.5	116.5	126.6	9.4	8.7
2911	Petroleum refining	101.3	94.9	94.2	83.7	79.4	81.8	90.7	3.0	10.9
301	Tires and inner tubes	107.7	107.3	102.4	118.1	128.2	136.1	151.5	6.2	11.3
3079	Miscellaneous plastics products	100.8	94.8	95.7	98.5	110.1	107.1	3/	-2.7	3/
314	Footwear	102.5	100.2	99.1	95.6	106.3	103.9	101.8	-2.3	-2.0
3221	Glass containers	99.4	102.4	105.2	110.1	105.8	108.5	115.6	2.6	6.5
3241	Hydraulic cement	101.3	96.0	87.0	91.1	94.0	108.4	123.2	15.3	13.7
325	Structural clay products	102.5	95.9	97.6	100.7	102.6	104.0	99.9	1.4	-3.9
3251,53,59	Clay construction products	102.2	91.6	94.0	97.3	103.3	100.4	97.1	-2.8	-3.3
3251	Brick and structural clay tile	96.2	85.4	84.9	84.3	88.6	84.9	82.4	-4.2	-2.9
3253	Ceramic wall and floor tile	115.2	111.6	119.8	125.9	128.1	125.5	3/	-2.0	3/
3255	Clay refractories	103.5	110.2	109.6	111.1	100.0	119.9	110.2	19.9	-8.1
3271,72	Concrete products	97.6	92.7	90.4	88.5	92.4	96.7	3/	4.7	3/
3273	Ready-mixed concrete	103.1	99.9	93.1	95.4	90.6	95.7	3/	5.6	3/
331	Steel	108.3	106.9	102.9	112.0	90.9	116.8	132.0	28.5	13.0
3321	Gray iron foundries	102.1	96.8	90.8	92.7	93.7	98.9	108.0	5.5	9.2
3324,25	Steel foundries	98.4	100.6	99.8	91.6	89.0	90.6	100.9	1.8	11.4
3331,32,33	Primary copper, lead, and zinc	96.5	106.5	103.7	118.6	128.0	141.8	152.6	10.8	7.6
3331	Primary copper	99.4	113.3	105.3	124.4	128.5	138.3	156.9	7.6	13.4
3334	Primary aluminum	99.6	99.7	100.0	103.8	103.0	111.5	122.8	8.3	10.1
3351	Copper rolling and drawing	99.9	98.1	94.1	97.9	106.0	121.1	127.5	14.2	5.3
3353,54,55	Aluminum rolling and drawing	104.0	100.3	100.0	96.8	99.2	110.4	110.6	11.3	0.2

SIC Code	Industry	1978	1979	1980	1981	1982	1983	1984 2/	Percent Change 1982-83	Percent Change 1983-84
3411	Metal cans	102.3	103.6	102.6	108.1	112.2	121.2	133.5	8.0	10.1
3423	Hand and edge tools	100.4	103.9	98.4	95.2	92.8	90.5	3/	-2.5	3/
3441	Fabricated structural metal	100.5	102.1	102.1	98.5	98.4	103.3	3/	5.0	3/
3494	Valves and pipe fittings	101.3	105.3	102.8	105.4	101.3	104.6	3/	3.3	3/
3598	Fabricated pipe and fittings	100.7	90.2	90.1	93.5	89.5	89.6	3/	0.1	3/
3519	Internal combustion engines, n.e.c.	105.1	98.2	94.3	93.2	82.0	89.0	3/	8.5	3/
352	Farm and garden machinery	98.9	100.5	93.3	95.1	94.9	95.0	3/	0.1	3/
3523	Farm machinery	97.4	98.3	91.3	94.1	92.6	92.1	3/	-0.5	3/
3524	Lawn and garden equipment	108.1	113.5	106.5	101.0	106.9	108.7	3/	1.7	3/
3531	Construction machinery and equipment	105.9	100.3	97.4	96.1	88.9	95.3	103.0	7.2	8.1
3533	Oilfield machinery and equipment	109.3	105.6	104.0	104.7	98.4	100.7	3/	2.3	3/
3541,42	Machine tools	102.6	102.0	98.8	96.5	88.1	86.8	86.9	-1.5	0.1
3541	Metal-cutting machine tools	103.6	103.0	100.6	98.9	89.4	85.0	85.9	-4.9	1.1
3542	Metal-forming machine tools	100.3	99.2	93.5	89.4	85.0	91.6	89.7	7.8	-2.1
3545	Machine tool accessories	103.6	100.8	99.2	102.0	89.1	85.4	3/	-4.2	3/
3561,63	Pumps and compressors	102.8	102.9	100.2	102.4	95.5	101.8	3/	6.6	3/
3561	Pumps and pumping equipment	101.4	101.2	97.7	101.7	92.7	99.6	3/	7.4	3/
3562	Ball and roller bearings	105.8	105.8	95.4	94.3	83.3	87.2	89.0	4.7	2.1
3563	Air and gas compressors	105.5	106.0	105.5	106.8	101.7	106.1	3/	4.3	3/
3585	Refrigeration and heating equipment	100.2	101.4	93.8	99.4	100.1	101.2	3/	1.1	3/
3612	Transformers	103.3	108.4	110.6	106.9	99.6	100.7	101.4	1.1	0.7
3613	Switchgear and switchboard apparatus	102.9	103.7	104.1	100.4	102.2	105.8	3/	3.5	3/
3621	Motors and generators	98.5	99.6	100.1	102.3	109.3	107.5	107.4	-1.6	-0.1
3631,32,33,39	Major household appliances	100.4	108.7	105.8	107.6	108.6	116.2	122.2	7.0	5.2
3631	Household cooking equipment	100.5	108.9	103.9	105.7	112.6	115.6	126.8	2.7	9.7
3632	Household refrigerators and freezers	98.4	112.3	114.4	117.4	116.1	128.4	135.9	10.6	5.8
3633	Household laundry equipment	102.3	108.1	102.1	103.9	105.4	112.0	111.6	6.3	-0.4
3639	Household appliances n.e.c.	103.2	102.6	99.1	100.4	94.7	103.2	105.9	9.0	2.6
3641	Electric lamps	102.5	105.2	103.2	106.9	108.4	124.7	132.0	15.0	5.9
3645,46,47,48	Lighting fixtures	100.4	94.6	93.3	88.7	91.0	94.7	3/	4.1	3/
3651	Radio and television receiving sets	113.2	118.5	116.9	133.6	163.9	196.7	3/	20.0	3/
371	Motor vehicles and equipment	99.3	97.8	90.8	93.1	96.9	109.6	114.6	13.1	4.6
3825	Instruments to measure electricity	101.0	100.2	108.4	111.9	118.8	120.2	3/	1.2	3/
	Other									
401	Railroad transportation-revenue traffic	104.5	104.7	107.3	111.5	115.8	141.9	151.4	22.5	6.7
401	Railroad transportation-car miles	102.8	102.9	107.9	107.6	110.1	128.9	136.6	17.1	6.0
4111,31,414	Class I bus carriers	96.7	98.3	100.8	90.9	90.0	84.8	3/	-5.8	3/
4213 PT	Intercity trucking	99.8	98.6	94.3	98.7	93.3	101.0	3/	8.3	3/
4213 PT	Intercity trucking-general freight	98.6	96.6	87.9	92.5	86.8	92.5	3/	6.6	3/
4511,4521 PT	Air transportation 5/	109.3	113.1	106.2	104.9	114.7	126.0	130.1	9.9	3.3
4612,13	Petroleum pipelines	101.7	101.7	93.0	86.0	89.2	93.9	104.3	5.3	11.1
4811	Telephone communications	105.8	110.8	118.1	124.4	129.1	146.0	3/	13.1	3/
491,92,93	Gas and electric utilities	98.2	97.6	96.2	94.4	89.3	88.1	91.2	-1.3	3.5
491,493 PT	Electric utilities	96.8	95.4	94.0	93.0	89.5	90.9	94.1	1.6	3.5
492,493 PT	Gas utilities	101.4	103.4	102.1	98.1	89.0	81.1	83.7	-8.9	3.2
54	Retail food stores 6/	95.4	97.3	99.7	96.8	95.2	96.9	95.9	1.8	-1.0
5511	Franchised new car dealers	98.6	94.6	99.5	96.6	97.4	106.2	106.1	9.0	-0.1
5541	Gasoline service stations 6/	102.8	106.9	104.3	105.8	110.7	118.5	119.0	7.0	0.4
56	Apparel and accessory stores 6/	111.4	114.4	120.1	127.1	130.9	138.1	146.4	5.5	6.0
5611	Men's and boys' clothing stores 6/	105.6	108.2	106.4	115.6	115.7	120.2	127.0	3.9	5.7
5621	Women's ready-to-wear stores 6/	113.9	120.7	125.5	139.0	158.2	169.0	184.1	6.8	8.9
5651	Family clothing stores 6/	100.3	107.7	122.6	131.4	139.6	149.3	155.0	6.9	3.8
5661	Shoe stores 6/	109.3	112.2	109.3	113.0	108.9	109.9	116.3	0.9	5.8
58	Eating and drinking places 6/	99.2	99.1	99.2	96.5	95.9	96.4	94.4	0.5	-2.1
5912	Drug and proprietary stores 6/	102.4	103.1	106.0	106.2	106.1	107.9	109.8	1.7	1.8
602	Commercial banking	101.2	99.3	92.7	90.5	93.2	102.7	3/	10.2	3/
7011	Hotels, motels, and tourist courts 6/	103.1	102.4	98.6	96.2	94.5	95.5	102.9	1.1	7.7
721	Laundry and cleaning services 6/	104.2	97.6	90.7	88.2	90.4	90.3	93.3	-0.1	3.3
723,724	Beauty and barber shops 6/	103.6	107.4	102.9	109.2	108.3	114.1	104.5	5.4	-8.4
723	Beauty shops 6/	104.7	108.0	106.2	114.7	113.1	120.0	111.7	6.1	-6.9

1/ Although the output per employee-hour measures relate output to the hours of all employees engaged in each industry, they do not measure the specific contribution of labor, capital, or any other single factor of production. Rather, they reflect the joint effects of many influences, including new technology, capital investment, the level of output, capacity utilization, energy use, and managerial skills, as well as the skills and efforts of the work force. Some of these measures use a labor input series that is based on hours paid and some use a labor input series that is based on plant hours.

2/ Preliminary.

3/ Not available.

4/ Less than 0.05 percent.

5/ Output per employee.

6/ Output per hour of all persons.

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Historical, technical information:	
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CONTINUED GAINS IN INDUSTRY PRODUCTIVITY IN 1985 REPORTED BY BLS

Productivity, as measured by output per employee hour, increased in 1985 in about two-thirds of the 82 industries for which 1985 data are presently available. These gains continued the productivity growth recorded in 1983 and 1984 in the industries covered by the Bureau of Labor Statistics of the U.S. Department of Labor. However, the gains in 1985 were lower than the previous year in many industries.

Among important manufacturing industries, the motor vehicles industry registered an above-average gain of 5.7 percent. Demand for motor vehicles continued strong, and output was up 7.1 percent while employee hours grew 1.3 percent. This was the fifth consecutive annual gain in productivity in this industry.

Productivity also was up in the steel industry, growing 5.5 percent in 1985, following a 12.4 percent gain in the previous year. Steel industry productivity has grown for 3 consecutive years. The 1985 increase, however, reflected a decline in output of 3.0 percent and a larger drop in employee hours of 8.1 percent. Demand for steel was down sharply in 1985, especially from capital goods markets, and the industry continued shutting down less efficient plant and equipment.

Other important manufacturing industries with significant productivity gains in 1985 included: Construction machinery (10.4 percent), machine tools (9.5 percent), petroleum refining (8.4 percent), synthetic fibers (7.6 percent), and household appliances (5.7 percent). In the construction machinery industry, output was up 4.9 percent in 1985 as demand continued strong due to the sustained expansion in construction activity. In the machine tool industry, output grew strongly (8.8 percent) based on continued demand for metal forming machine tools, especially from the motor vehicle industry, while hours fell slightly. Petroleum refining output remained flat in 1985; however, employee hours dropped off sharply (-7.8 percent), as small inefficient refineries continued to be closed. In synthetic fibers, output was up 1.5 percent based on divergent trends for non-cellulosic fibers (up sharply) and cellulosic fibers (down sharply), while hours over all were declining (-5.7 percent). In household appliances, the productivity gain was based on a drop in output of 6.2 percent and an even larger drop in hours of 11.2 percent.

A number of other large manufacturing industries posted gains in 1985. These included: Soft drinks (4.8 percent), sawmills (2.8 percent), pharmaceutical preparations (2.7 percent), gray iron foundries (2.2 percent), and paper, paperboard and pulp (0.2 percent).

On the other hand, several manufacturing industries registered productivity declines in 1985. Some of these were: Steel foundries (-4.8 percent), primary aluminum (-4.2 percent), malt beverages (-1.6 percent), household furniture (-0.8 percent), and tires and tubes (-0.7 percent). Output declined in all of these industries except for malt beverages in 1985.

All of the mining industries recorded productivity gains in 1985. Coal mining, the largest, experienced a gain of 2.0 percent, following a much larger gain of 11.2 percent in 1984. Coal mine output fell in 1985 (1.1 percent) due to moderate weather and a drawdown of stockpiles built up because of an anticipated strike in 1984, and hours declined 3.1 percent. Productivity in iron mining (usable ore) was up 7.8 percent in 1985, compared with a 22.9 percent gain in the previous year. Output was down 5.3 percent, as demand from the steel industry fell off, while hours declined 12.2 percent, as a number of mining operations were temporarily shut down. In copper mining (recoverable metal), productivity was up 21.9 percent. Output grew only 1.4 percent in 1985, due to a continued drop in the price of copper, while hours fell 16.8 percent, as marginal mining operations were closed. Non-metallic mineral mining had a productivity gain of 2.3 percent. Output grew 3.7 percent in this industry as demand continued from the construction industry.

Productivity changes were mixed among transportation and utility industries. In railroads (revenue traffic), productivity was up 6.2 percent, continuing the growth registered in the previous year. Railroad output fell 0.5 percent in 1985 as shipments of coal, grain, metallic ores, forest products and other commodities were down while hours fell 6.3 percent. Productivity in air transportation grew 3.3 percent, compared with a 3.9 percent gain in the previous year. Output was up 8.6 percent in 1985 while employment grew 5.1 percent. Petroleum pipelines productivity dropped 0.2 percent compared with a 10.8 percent gain in 1984. Output recorded no change in 1985 (as in

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petroleum refining), while hours increased slightly. Productivity in telephone communications was up 4.8 percent with output growing 2.5 percent and hours falling 2.2 percent. Productivity declined in both gas and electric utilities. In gas utilities, productivity fell 3.5 percent, as output decreased 3.7 percent, due mainly to mild weather in 1985, while hours dropped 0.3 percent. In electric utilities, productivity registered an 0.2 percent decline as output grew 2.0 percent, while hours were up 2.2 percent, due partly to growth in the number of residential customers.

Productivity changes also varied among the trade and service industries. Apparel and accessory stores had the largest gain in this group, up 5.7 percent, as all the component retail apparel industries recorded productivity gains. Output was up 4.0 percent and hours were off 1.6 percent in this industry. Gasoline service stations had a productivity gain of 2.6 percent. Output grew a low 0.2 percent, while hours continued their long-term decline, falling 2.2 percent. The remaining trade and service industries covered registered productivity declines. Despite an output gain in all of these industries, hours increased even more, resulting in the productivity falloffs. New car dealer productivity dropped 0.5 percent, although there was a significant output gain. In retail food stores, productivity fell 1.0 percent, due in part to the continuing trend toward more service-oriented operations such as delicatessens, in-store bakeries, and salad bars. Productivity dropped 2.7 percent in eating and drinking places, 4.1 percent in beauty and barber shops, 4.2 percent in drug stores, and 5.0 percent in both hotels and motels and laundries and cleaning services.

The attached table presents indexes of output per employee hour for the selected industries for the last 7 years. Although the output per employee hour measures relate output to the hours of all employees engaged in each industry, they do not measure only the specific contributions of labor, capital, or any other single factor of production. Rather, they reflect the joint effects of many influences, including new technology, capital investment, the level of output, capacity utilization, energy use, and managerial skills, as well as the skills and efforts of the work force.

Additional data for these measures, such as average rates of change for all the components of the measures back to 1947 for many industries, are available from the BLS upon request. The forthcoming bulletin, "Productivity Measures for Selected Industries, 1958-1985," will include data back to 1958 for many industries. Data on output per hour of all persons and related cost measures for the nonfarm business sector, private business, manufacturing, and nonfinancial corporations are reported in the quarterly BLS news release, "Productivity and Costs."

Indexes of Output per employee-hour 1/ in selected industries
1979-85 and percent changes 1984-85
(1977 = 100)

SIC Code	Industry	1979	1980	1981	1982	1983	1984	1985 2/	Percent Change 1984-1985
	Mining								
1011	Iron mining, crude ore	122.7	124.7	132.8	100.9	139.0	172.1	183.7	6.7
1011	Iron mining, usable ore	122.8	123.2	130.6	98.2	138.6	170.4	183.7	7.8
1021	Copper mining, crude ore	109.1	99.5	102.0	106.4	129.9	140.3	159.3	13.5
1021	Copper mining, recoverable metal	98.2	91.6	97.7	116.2	130.9	153.9	187.6	21.9
111,21	Coal mining	99.4	112.5	122.2	119.2	136.1	151.3	154.4	2.0
121	Bituminous coal and lignite mining	99.6	112.6	122.7	120.0	136.9	152.3	155.2	1.9
14	Nonmetallic minerals, except fuels	102.7	96.5	94.7	89.3	98.2	105.3	107.7	2.3
142	Crushed and broken stone	106.9	101.3	96.7	94.1	103.9	105.8	104.9	-0.9
	Manufacturing								
2011,13	Red meat products	101.7	107.0	107.9	112.3	115.9	117.0	3/	3/
2011	Meat packing	104.6	108.9	113.9	119.5	123.3	125.6	3/	3/
2013	Sausages and other prepared meats	95.0	102.3	95.0	96.5	100.1	99.5	3/	3/
2026	Fluid milk	117.3	126.5	131.6	140.0	145.5	152.6	3/	3/
203	Preserved fruits and vegetables	98.9	100.8	99.2	107.9	110.9	112.4	3/	3/
2033	Canned fruits and vegetables	101.9	101.4	100.7	108.6	114.4	114.9	3/	3/
204	Grain mill products	101.0	105.3	110.9	121.0	125.5	132.7	3/	3/
2041,2045	Flour (inc. flour mixes) & other grains	95.1	98.1	99.1	112.3	117.9	122.5	3/	3/
2041	Flour and other grain mill products	97.3	94.8	96.7	104.1	110.4	114.9	126.5	10.1
2043	Cereal breakfast foods	107.3	105.9	109.3	115.0	118.7	129.0	3/	3/
2044	Rice milling	96.3	111.8	117.9	104.5	103.3	93.2	3/	3/
2046	Corn milling	105.7	121.0	137.5	138.8	156.6	191.6	3/	3/
2047,48	Prepared feeds for animals and fowls	101.2	105.0	110.7	124.9	127.4	132.5	3/	3/
205	Bakery products	95.0	93.7	96.2	103.3	106.9	106.8	3/	3/
2061,62,63	Sugar	103.1	100.1	98.8	90.4	98.6	99.7	103.1	3.4
2061,62	Raw and refined cane sugar	101.5	99.3	98.8	87.6	100.0	94.7	102.4	8.1
2063	Beet sugar	104.6	102.1	98.7	94.8	94.6	108.8	105.1	-3.4
2082	Malt beverages	109.9	116.0	118.3	122.6	131.3	137.9	135.7	-1.6
2086	Bottled and canned soft drinks	105.6	109.8	114.3	118.3	127.0	138.3	144.9	4.8
2111,21,31,61	Total tobacco	102.1	102.1	100.5	100.7	105.1	110.3	114.9	4.2
2111,31	Cigarettes, chewing and smoking tobacco	102.4	101.0	99.6	99.5	104.1	107.2	113.1	5.5
2121	Cigars	101.4	106.4	107.3	111.4	112.3	141.4	134.7	-4.7
2251,52	Hosiery	107.9	107.4	122.0	114.2	118.0	119.7	115.5	-3.5
2281	Nonwool yarn mills	103.8	99.7	103.1	118.2	126.0	129.7	129.1	-0.5
2421	Sawmills and planing mills, general	106.3	104.2	107.9	115.1	125.0	131.9	135.6	2.8
2431	Millwork	92.2	93.6	96.4	86.1	86.3	88.7	3/	3/
2434	Kitchen cabinets	92.1	98.2	94.8	96.1	93.5	93.8	3/	3/
2435,36	Veneer and plywood	94.5	102.8	106.9	114.4	120.6	120.3	3/	3/
2435	Hardwood veneer and plywood	97.8	104.1	100.3	101.4	110.1	105.0	3/	3/
2436	Softwood veneer and plywood	93.4	102.7	111.8	122.1	126.5	129.5	3/	3/
251	Household furniture	101.5	99.9	103.0	104.7	109.6	111.3	110.4	-0.8
2511,17	Wood household furniture	101.7	97.3	97.4	98.3	103.2	104.4	3/	3/
2512	Upholstered household furniture	105.1	102.3	110.5	115.9	121.4	122.0	3/	3/
2514	Metal household furniture	90.2	93.6	98.7	107.5	109.1	120.3	3/	3/
2515	Mattresses and bedsprings	102.8	112.1	114.0	104.3	108.3	109.2	3/	3/
252	Office furniture	107.2	112.1	108.8	107.4	110.7	116.7	3/	3/
2521	Wood office furniture	110.8	109.2	99.5	90.3	92.9	94.5	3/	3/
2522	Metal office furniture	104.5	113.9	114.0	116.6	120.5	129.6	3/	3/
2611,21,31,61	Paper, paperboard, and pulp mills	105.4	105.2	104.4	111.3	119.6	121.9	122.2	0.2
2643	Paper and plastic bags	98.0	94.6	92.3	95.3	102.2	105.0	3/	3/
2651	Folding paperboard boxes	104.3	101.3	104.4	104.2	104.1	102.0	103.2	1.2
2653	Corrugated and solid fiber boxes	106.9	111.0	109.8	111.9	114.0	118.9	118.9	4/
2823,24	Synthetic fibers	115.0	115.7	120.9	103.6	126.2	125.3	134.8	7.6
2834	Pharmaceutical preparations	105.3	106.0	104.2	107.0	114.4	112.6	115.6	2.7
2841	Soaps and detergents	104.8	109.6	107.3	100.9	98.2	101.0	3/	3/
2844	Cosmetics and other toiletries	94.0	83.6	76.1	84.0	86.0	84.6	3/	3/
2851	Paints and allied products	104.8	100.8	99.8	106.5	111.5	114.8	120.6	5.1
2911	Petroleum refining	94.9	94.2	83.7	79.4	81.8	92.5	100.3	8.4
3011	Tires and inner tubes	107.3	102.4	118.1	128.2	136.1	146.8	145.7	-0.7
3079	Miscellaneous plastics products	94.8	95.7	98.5	110.1	107.1	109.9	3/	3/
314	Footwear	100.2	99.1	95.6	106.4	103.9	106.3	107.0	0.7
3221	Glass containers	102.4	105.2	110.1	105.8	108.5	128.0	132.1	3.2
3241	Hydraulic cement	96.0	87.0	91.1	94.0	108.4	125.3	132.1	5.4
325	Structural clay products	95.9	97.6	100.7	102.6	104.0	109.9	107.8	-1.9
3251,53,59	Clay construction products	91.6	94.0	97.3	103.3	100.4	108.5	106.6	-1.8
3251	Brick and structural clay tile	85.4	84.9	84.3	88.6	84.9	92.2	93.5	1.4
3253	Ceramic wall and floor tile	111.6	119.8	125.9	128.1	125.5	140.2	3/	3/
3255	Clay refractories	110.2	109.6	111.1	100.0	119.9	116.3	113.4	-2.5
3271,72	Concrete products	92.7	90.4	88.5	91.0	96.4	98.3	3/	3/
3273	Ready-mixed concrete	99.9	93.1	95.4	90.6	93.7	96.3	3/	3/
331	Steel	106.9	102.9	112.0	90.9	116.8	131.3	138.5	5.5
3321	Gray iron foundries	96.8	90.8	92.7	93.7	98.7	106.8	109.2	2.2
3324,25	Steel foundries	100.6	99.8	91.6	89.0	90.6	97.4	92.7	-4.8
3331,32,33	Primary copper, lead, and zinc	106.5	103.7	118.6	128.0	141.8	148.9	190.9	28.2
3331	Primary copper	113.3	105.3	124.4	128.5	138.3	151.9	208.5	37.3
3334	Primary aluminum	99.7	100.0	103.8	103.0	111.5	125.4	120.1	-4.2
3351	Copper rolling and drawing	98.1	94.1	97.9	106.0	121.2	128.3	128.9	0.5
3353,543,55	Aluminum rolling and drawing	100.3	100.0	96.8	99.2	110.4	116.2	117.1	0.8

SIC Code	Industry	1979	1980	1981	1982	1983	1984	1985 2/	Percent Change 1984-1985
3411	Metal cans	103.6	102.6	108.1	118.5	120.5	122.6	125.8	2.6
3423	Hand and edge tools	103.9	98.4	95.2	92.8	90.5	89.4	3/	3/
3441	Fabricated structural metal	102.1	102.1	98.5	98.4	103.3	106.8	3/	3/
3442	Metal doors, sash, and trim	92.8	90.6	90.4	96.0	98.9	102.5	3/	3/
3465,66,69	Metal stampings	102.3	99.9	101.4	98.1	104.1	109.3	3/	3/
3465	Automotive stampings	102.9	101.6	105.0	106.7	121.5	127.1	3/	3/
3469	Metal stampings, n.e.c.	101.5	98.1	98.0	89.3	88.8	93.7	3/	3/
3494	Valves and pipe fittings	105.3	102.8	105.4	101.3	104.6	104.7	3/	3/
3498	Fabricated pipe and fittings	90.2	90.1	93.5	89.5	89.6	100.1	3/	3/
3519	Internal combustion engines, n.e.c.	98.2	94.3	93.2	82.0	88.3	98.7	3/	3/
352	Farm and garden machinery	100.5	93.3	95.1	94.9	95.1	104.9	3/	3/
3523	Farm machinery and equipment	98.3	91.3	94.1	92.6	92.1	104.7	3/	3/
3524	Lawn and garden equipment	113.5	106.5	101.0	106.9	109.9	109.7	3/	3/
3531	Construction machinery and equipment	100.3	97.4	96.1	88.9	95.3	103.4	114.2	10.4
3533	Oilfield machinery and equipment	105.6	104.0	104.7	98.4	100.9	89.7	3/	3/
3541,42	Machine tools	102.0	98.8	96.5	88.1	86.8	93.0	101.8	9.5
354	Metal cutting machine tools	103.0	100.6	98.9	89.4	85.0	92.9	99.7	7.3
3542	Metal forming machine tools	99.2	93.5	89.4	85.0	91.6	93.5	106.9	14.3
3545	Machine tool accessories	100.8	99.2	102.0	89.1	85.4	95.2	3/	3/
3561,63	Pumps and compressors	102.9	100.2	102.4	95.5	101.8	106.0	3/	3/
3561	Pumps and pumping equipment	101.2	97.7	101.7	92.7	99.6	104.0	3/	3/
3562	Ball and roller bearings	105.8	95.4	94.3	83.3	87.2	92.7	92.6	-0.1
3563	Air and gas compressors	106.0	105.5	106.8	101.7	106.1	110.0	3/	3/
3585	Refrigeration and heating equipment	101.4	93.8	99.4	100.1	101.2	104.1	3/	3/
3612	Transformers	108.4	110.6	106.9	99.6	100.7	96.1	97.0	0.9
3613	Switchgear and switchboard apparatus	102.8	103.2	99.5	101.3	105.7	106.5	105.1	-1.3
3621	Motors and generators	99.3	96.7	100.4	102.4	104.2	106.4	108.2	1.7
3631,32,33,39	Major household appliances	108.7	105.8	107.6	108.6	116.5	121.7	128.6	5.7
3631	Household cooking equipment	108.9	103.9	105.7	112.6	118.2	127.9	137.2	7.3
3632	Household refrigerators and freezers	112.3	114.4	117.4	116.1	128.1	127.5	134.0	5.1
3633	Household laundry equipment	108.1	102.1	103.9	105.4	110.5	117.0	124.9	6.8
3639	Household appliances, n.e.c.	102.6	99.1	100.4	94.7	102.8	108.1	110.4	2.1
3641	Electric lamps	105.2	103.2	106.9	108.4	124.7	132.0	126.4	-4.2
3645,46,47,48	Lighting fixtures	94.6	93.3	88.7	91.0	95.3	101.1	105.0	3.9
3651	Radio and television receiving sets	118.5	116.9	133.6	163.9	196.7	228.9	3/	3/
371	Motor vehicles and equipment	97.8	90.8	93.1	96.9	109.6	115.9	122.5	5.7
3825	Instruments to measure electricity	100.2	108.4	111.9	119.2	120.7	131.2	3/	3/
	Other								
401	Railroad transportation-revenue traffic	104.7	107.3	111.5	115.8	141.9	152.6	162.1	6.2
401	Railroad transportation-car miles	102.9	107.9	107.6	110.1	128.9	137.7	138.9	0.9
4111,31,414	Class I bus carriers	98.3	100.9	90.7	98.8	95.4	90.9	3/	3/
4213 PT	Intercity trucking	98.6	94.3	98.7	93.3	101.0	102.5	3/	3/
4213 PT	Intercity trucking, general freight	96.6	87.9	92.5	86.8	92.5	94.2	3/	3/
4511,4521, PT	Air transportation 5/	113.1	106.2	104.9	114.9	126.8	131.7	136.1	3.3
4612,13	Petroleum pipelines	101.7	93.0	86.0	89.2	94.3	104.5	104.3	-0.2
4811	Telephone communications	110.8	118.1	124.4	129.1	145.7	144.0	150.9	4.8
491,92,93	Gas and electric utilities	97.6	96.2	94.4	89.3	88.1	91.4	90.4	-1.1
491,493 PT	Electric utilities	95.4	94.0	93.0	89.5	90.9	94.4	94.2	-0.2
492,493 PT	Gas utilities	103.4	102.1	98.1	89.0	81.1	83.6	80.7	-3.5
54	Retail food stores 6/	96.3	98.9	95.2	93.5	93.9	93.6	92.7	-1.0
5511	Franchised new car dealers	97.7	99.6	98.1	100.4	109.4	110.4	109.8	-0.5
5541	Gasoline service stations 6/	106.9	104.3	105.8	110.7	118.1	121.0	124.1	2.6
56	Apparel and accessory stores 6/	114.4	120.1	127.1	130.9	137.8	146.8	155.2	5.7
5611	Men's and boys' clothing stores 6/	108.2	106.4	115.6	115.7	120.1	127.2	130.5	2.6
5621	Women's ready-to-wear stores 6/	120.7	125.5	139.0	158.2	169.7	178.4	178.6	0.1
5651	Family clothing stores 6/	107.7	122.6	131.4	139.6	149.8	150.2	154.8	3.1
5661	Shoe stores 6/	112.2	109.3	113.0	108.9	110.0	116.5	126.3	8.4
58	Eating and drinking places 6/	99.4	99.5	97.0	96.6	97.1	95.5	92.9	-2.7
5912	Drug and proprietary stores 6/	103.8	107.0	107.6	107.9	110.1	105.0	100.6	-4.2
602	Commercial banking	99.3	92.7	90.5	93.2	101.7	104.7	3/	3/
7011	Hotels, motels, and tourist courts 6/	100.0	95.0	91.6	88.8	95.4	102.1	97.0	-5.0
721	Laundry and cleaning services 6/	97.5	90.6	88.1	90.2	90.1	92.1	87.5	-5.0
723,724	Beauty and barber shops 6/	107.4	102.9	109.2	108.3	114.1	103.9	99.6	-4.1
723	Beauty shops 6/	108.0	106.2	114.7	113.1	120.0	112.3	107.7	-4.1

1/ Although the output per employee-hour measures relate output to the hours of all employees engaged in each industry, they do not measure the specific contribution of labor, capital, or any other single factor of production. Rather, they reflect the joint effects of many influences, including new technology, capital investment, the level of output, capacity utilization, energy use, and managerial skills, as well as the skills and efforts of the work force. Some of these measures use a labor input series that is based on hours paid and some use a labor input series that is based on plant hours.

2/ Preliminary.

3/ Not available.

4/ Less than 0.05 percent.

5/ Output per employee.

6/ Output per hour of all persons.

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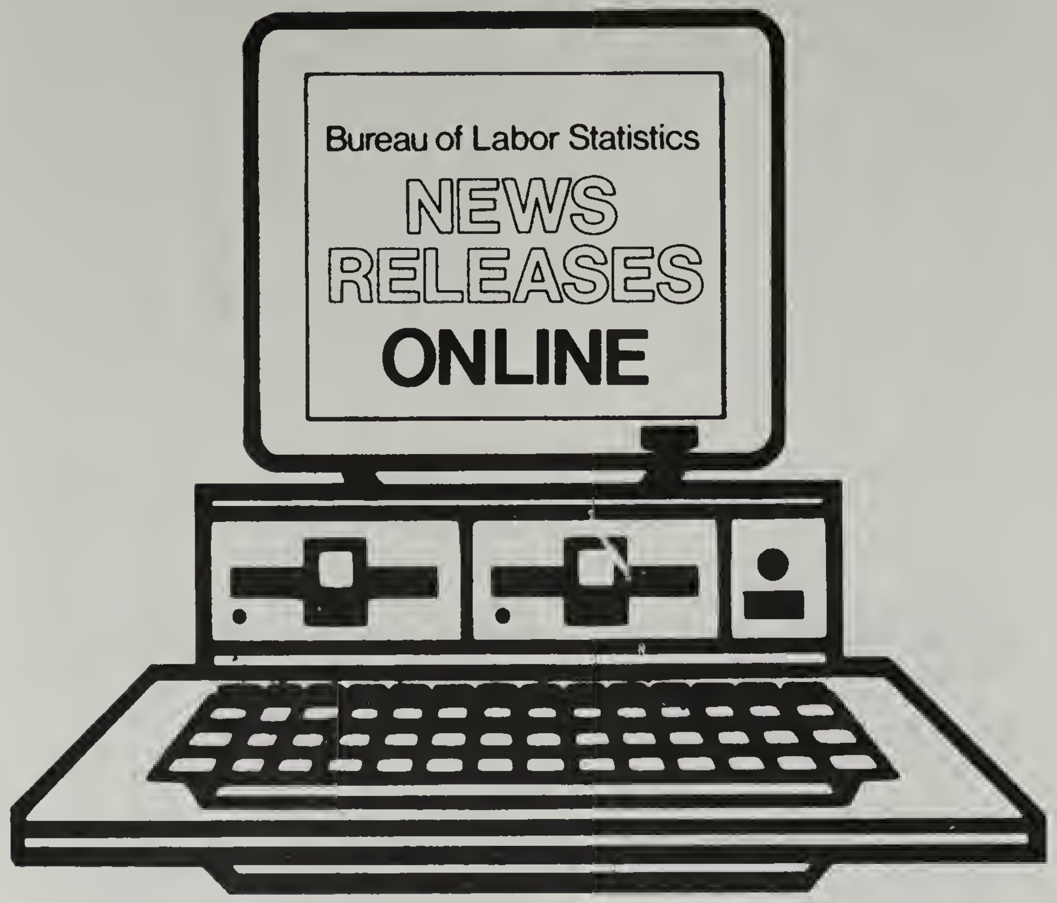

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CONTINUED GAINS IN INDUSTRY PRODUCTIVITY IN 1987 REPORTED BY BLS

The Bureau of Labor Statistics of the U.S. Department of Labor reported that productivity, as measured by output per employee hour, increased in 1987 in two-thirds of the 99 industries for which current data are presently available. In 1986, productivity gains were recorded in more than three quarters of all industries in the survey.

Among the manufacturing industries, both steel and motor vehicles posted gains in output per employee hour in 1987. The steel industry registered a gain of 7.0 percent, well above the industry's long-term average. Output was up significantly by--9.5 percent in 1987--as compared with a large decline in 1986. Demand for steel grew in such important markets as construction, chemicals, oil and gas production, and heavy equipment manufacturing, while employee hours grew 2.4 percent in 1987. This was the fifth consecutive year of steel industry productivity growth. Motor vehicle manufacturing registered a productivity gain of 2.9 percent, slightly below the industry's long-term average. Output grew 0.8 percent, compared with a decline in the previous year, while employee hours fell 2.0 percent in 1987. Although production of passenger cars fell in 1987, this drop was more than compensated for by output gains in trucks, buses, truck trailers, motor homes, and replacement parts. This year marked the seventh consecutive gain in productivity by the motor vehicles industry.

Among the other manufacturing industries, a number had large output-per-employee-hour increases in 1987. These included semiconductors with the very high gain of 23.6 percent as compared with a small gain in the previous year. Output was up 14.0 percent, based on such factors as increased demand from computer manufacturers and limits placed on imports from Japan. Employee hours were off 7.8 percent, due in part to mergers and consolidations in the industry.

The aluminum industries had good productivity gains in 1987 compared with those in 1986. Aluminum rolling and drawing had an increase of 13.3 percent, based on an output gain of 12.3 percent and a decline in employee hours of 0.9 percent. Primary aluminum manufacturing registered a productivity gain of 7.1 percent, as output was up 10.2 percent while employee hours grew 2.9 percent. Both domestic demand for aluminum products and exports were up at the same time that new, more efficient plant and equipment were increasingly being utilized.

Productivity in the oilfield machinery industry rose 12.6 percent in 1987. However, it reflected a drop in output of 10.7 percent, due to continued poor demand for oilfield equipment as oil prices remained low, accompanied by an even larger drop of 20.6 percent in employee hours, as the industry continued to cut employment back. The tires and tubes industry, benefiting from cost cutting in previous years involving elimination of outdated plant and equipment, recorded a large productivity gain of 10.8 percent in 1987, compared with a substantially smaller gain in 1986. Output was up 10.3 percent in 1987, while employee hours fell 0.5 percent in this industry.

Other important manufacturing industries with substantial gains in productivity included radio and television sets (8.1 percent), bottled and canned soft drinks (7.3 percent), men's and boys' suits and coats (6.8 percent), metal cans (6.6 percent), synthetic fibers (6.5 percent), and paper (6.2 percent). All of these industries registered output gains in 1987.

On the other hand, a number of manufacturing industries registered declines in productivity in 1987. These industries included cigars (-16.5 percent), construction machinery (-7.3 percent), steel foundries (-6.0 percent), transformers (-4.8 percent), metal cutting machine tools (-4.7 percent), and footwear (-4.6 percent).

Productivity changes were mixed among the mining industries. Iron mining (usable ore) had a very high productivity gain of 32.5 percent in 1987. Output grew 21.0 percent as demand was up strongly from the steel industry, while employee hours continued to decline (-8.7 percent). On the other hand, copper mining (recoverable metal) posted a large decline in productivity of 8.3 percent. Although output increased strongly (11.0 percent) as demand for copper expanded sharply, employee hours were up even

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more (21.1 percent) as many workers were engaged in renovating reopened mines prior to the actual production of ore.

Coal mining productivity was up 7.4 percent. Output grew 3.0 percent due in part to increased demand from utilities, while employee hours fell 4.1 percent due to changes in work rules and a continued decline in small mines. Non-metallic mineral mining recorded a small drop in productivity of 0.3 percent. Although output was up slightly (1.8 percent), based on demand from the construction industry, employee hours were up somewhat more (2.0 percent).

Almost all the transportation and utility industries had productivity gains in 1987. Productivity grew 16.6 percent in railroad transportation (revenue traffic), well above the gain in the previous year. Output was up 8.2 percent, as shipments of coal, grain, lumber, and wood increased, and passenger transportation grew. Air transportation posted a productivity gain of 5.9 percent in 1987. Output was up 10.4 percent, as both passenger and freight traffic increased, while employees were up 4.2 percent.

Electric utility productivity grew 5.0 percent as output was up 3.3 percent while employee hours fell 1.5 percent. Gas utilities had a productivity gain of 2.5 percent, with output up 1.4 percent and hours down 1.0 percent. Extreme weather conditions, both heat and cold, aided output growth in both of these utility industries, while technological changes helped to lower labor requirements.

Productivity grew 3.0 percent in telephone communications based on an increase in output of 5.6 percent and a gain in employee hours of 2.5 percent. Continued productivity growth in this industry was aided by expanding installation of electronic switches and fiber optic cables. On the other hand, productivity declined slightly in petroleum pipelines (-0.4 percent), as both output and employee hours were off slightly (-0.8 and -0.5 percent, respectively).

Most of the productivity gains in trade and services were small in 1987, and many industries recorded declines. Hardware stores were the exception with a gain of 8.8 percent. Output grew 11.6 percent as expenditures for maintenance and repair of residential properties were up, while hours increased 2.6 percent. Productivity of department stores rose 1.4 percent, and gasoline service stations posted a 1.3 percent gain. Eating and drinking places increased 0.8 percent. Output of eating and drinking establishments grew 4.8 percent, aided by expansion in take out and home delivery of food, while hours were up 4.2 percent. Furniture, home furnishings, and equipment stores had a 0.4 percent gain in productivity. Demand for furniture and appliances remained high in 1987 due to the continued strength in the housing market. Productivity changes in the components of this industry ranged from a gain of 3.6 percent for household appliance stores to -1.1 percent for radio, T.V., and music stores. Productivity in drug stores grew 0.3 percent as output gained 2.8 percent, aided by expanding prescription sales, while hours were up 2.5 percent.

Among the trade and service industries with declines, retail food stores posted a drop of 1.9 percent in productivity. The major component of this industry--grocery stores--had a 2.1 percent productivity drop, while retail bakeries, a small part of this industry, posted a 0.9 percent productivity gain.

Apparel and accessory stores had a large productivity decline of-4.7 percent. Output declined slightly (-0.1 percent) while hours were up (4.9 percent) as the number of stores continued to grow. All the components of this industry (men's, women's, and family clothing and shoe stores) also registered declines in productivity. Productivity of new car dealers fell 4.9 percent as output was down 2.5 percent due to declining sales of new and used cars, while hours were up 2.4 percent. Productivity fell 5.2 percent in hotels and motels as the industry continued to feel the impact of overbuilding. Output was up only 0.2 percent while hours grew 5.7 percent in 1987. Liquor store productivity fell 6.5 percent as output fell 3.0 percent and hours increased 3.9 percent.

The attached table presents indexes of output per employee hour for the selected industries for the last 7 years. Although the output per employee hour measures relate output to the hours of all employees engaged in each industry, they do not measure only the specific contributions of labor, capital, or any other single factor of production. Rather, they reflect the joint effects of many influences, including new technology, capital investment, the level of output, capacity utilization, energy use, and managerial skills, as well as the skills and efforts of the work force.

Additional data for these measures, such as average rates of change for all the components of the measures back to 1947 for many industries, are available from the BLS upon request. The forthcoming bulletin, "Productivity Measures for Selected Industries and Government Services," will include data back to 1958 for many industries. Data on output per hour of all persons and related cost measures for the nonfarm business sector, private business, manufacturing, and nonfinancial corporations are reported in the quarterly BLS news release, "Productivity and Costs."

Indexes of Output per Employee-hour 1/ in Selected Industries
1981-87 and percent changes 1986-87
(1977=100)

SIC Code	Industry	1981	1982	1983	1984	1985	1986	1987 2/	Percent Change 1986-1987
	Mining								
1011	Iron mining, crude ore	132.8	100.9	139.0	173.3	187.9	200.3	267.5	33.5
1011	Iron mining, usable ore	130.6	98.2	138.6	171.7	187.9	197.8	262.0	32.5
1021	Copper mining, crude ore	102.0	106.4	129.9	140.3	164.2	195.4	193.1	-1.2
1021	Copper mining, recoverable metal	97.7	116.2	130.9	155.4	193.1	228.9	209.8	-8.3
111,121	Coal mining	122.2	119.2	136.1	151.3	154.0	167.3	179.7	7.4
121	Bituminous coal and lignite mining	122.7	120.0	136.9	152.3	154.6	168.2	180.6	7.4
14	Nonmetallic minerals, except fuels	94.7	89.3	98.2	105.5	107.5	108.2	107.9	-0.3
142	Crushed and broken stone	96.7	94.1	103.9	105.8	104.5	104.9	102.7	-2.1
	Manufacturing								
2011,13	Red meat products	107.9	112.3	115.9	117.0	119.5	117.3	3/	3/
2011	Meat packing plants	113.9	119.5	123.4	125.6	130.1	126.2	3/	3/
2013	Sausages and other prepared meats	95.0	96.5	100.0	99.5	98.8	98.7	3/	3/
2016,17	Poultry dressing and processing	116.4	125.6	131.7	130.3	133.2	127.3	3/	3/
2026	Fluid milk	128.0	135.3	142.4	147.7	152.3	157.0	164.2	4.6
203	Preserved fruits and vegetables	99.2	107.9	110.4	112.4	111.7	118.3	3/	3/
2033	Canned fruits and vegetables	100.7	108.6	112.2	115.7	122.1	131.5	3/	3/
204	Grain mill products	110.9	121.0	125.5	132.8	144.9	146.6	3/	3/
2041,45	Flour (inc. flour mixes) & other grains	99.1	112.3	117.7	122.9	126.0	132.1	3/	3/
2041	Flour and other grain mill products	96.7	104.1	110.4	114.9	122.9	130.6	129.0	-1.2
2043	Cereal breakfast foods	109.3	115.0	118.8	129.3	133.8	134.0	3/	3/
2044	Rice milling	117.9	104.5	103.3	93.2	103.2	112.6	118.4	5.2
2046	Wet corn milling	137.5	138.8	156.9	192.1	198.4	218.1	3/	3/
2047,48	Prepared feeds for animals and fowls	110.7	124.9	127.5	132.5	143.8	140.0	3/	3/
205	Bakery products	96.2	103.3	106.9	106.8	108.5	114.4	3/	3/
2061,62,63	Sugar	98.8	90.4	98.6	99.7	105.5	110.1	127.4	15.7
2061,62	Raw and refined cane sugar	98.8	87.6	100.0	94.7	108.7	109.6	118.5	8.1
2063	Beet sugar	98.7	94.8	94.5	108.8	100.7	111.8	142.6	27.5
2082	Malt beverages	118.3	122.6	131.3	137.9	130.3	152.3	154.8	1.6
2086	Bottled and canned soft drinks	110.6	114.1	121.5	131.0	136.7	146.6	157.3	7.3
2111,21,31	Total tobacco products	100.5	100.7	105.1	110.3	113.4	117.2	119.2	1.7
2111,31	Cigarettes, chewing and smoking tobacco	99.6	99.5	104.1	107.2	111.7	115.5	121.2	4.9
2121	Cigars	107.3	111.4	112.3	141.4	129.3	133.1	111.1	-16.5
2211,21	Cotton and synthetic broad woven fabrics	107.4	112.5	121.8	119.9	123.7	132.9	133.7	0.6
2251,52	Hosiery	122.0	114.2	118.0	119.9	118.5	121.0	121.1	0.1
2281	Nonwool yarn mills	103.1	118.2	128.5	129.6	134.5	141.1	142.8	1.2
2311	Men's and boys' suits and coats	98.8	95.2	90.2	96.9	106.3	107.5	114.8	6.8
2421	Sawmills and planing mills, general	107.9	115.1	126.8	132.3	139.2	155.1	151.6	-2.3
2431	Millwork	96.4	86.1	87.9	88.7	85.7	90.1	3/	3/
2434	Wood kitchen cabinets	94.8	96.1	94.3	94.2	89.1	87.0	3/	3/
2435,36	Veneer and plywood	106.9	114.4	121.1	120.0	125.1	126.6	3/	3/
2435	Hardwood veneer and plywood	100.3	101.4	110.1	103.9	118.4	122.8	3/	3/
2436	Softwood veneer and plywood	111.8	122.1	127.3	129.6	128.8	128.8	3/	3/
251	Household furniture	103.0	104.7	110.1	112.2	112.5	118.5	115.9	-2.2
2511,17	Wood household furniture	97.3	98.2	103.8	105.5	104.4	111.9	3/	3/
2512	Upholstered household furniture	110.5	115.9	121.6	122.7	124.6	127.1	3/	3/
2514	Metal household furniture	98.7	107.5	108.9	121.4	124.2	128.8	3/	3/
2515	Mattresses and bedsprings	114.0	104.3	108.6	109.5	108.8	117.9	128.3	8.8
252	Office furniture	108.8	107.4	112.0	117.8	116.7	117.8	122.6	4.1
2521	Wood office furniture	99.5	90.3	93.9	96.0	96.2	93.4	3/	3/
2522	Metal office furniture	114.0	116.6	122.1	130.5	128.2	131.9	3/	3/
2611,21,31,61	Paper, paperboard, and pulp mills	104.4	111.3	119.5	121.0	123.1	133.5	141.8	6.2
2643	Paper and plastic bags	92.3	95.3	102.9	105.6	107.1	112.3	3/	3/
2651	Folding paperboard boxes	104.5	104.2	104.5	102.4	99.6	101.4	98.1	-3.3
2653	Corrugated and solid fiher boxes	109.8	111.9	114.0	118.9	122.5	126.7	128.9	1.7
281	Industrial inorganic chemicals	91.4	86.3	94.0	104.5	101.4	105.4	3/	3/
2812	Alkalies and chlorine	95.3	100.8	127.7	146.1	148.3	197.5	3/	3/
2816	Inorganic pigments	105.1	96.7	107.4	128.0	132.7	138.8	3/	3/
2819 PT	Industrial inorganic chemicals, n.e.c.	89.3	80.8	85.8	95.0	91.5	90.6	3/	3/
2823,24	Synthetic fibers	120.9	103.6	126.2	125.3	135.8	146.2	155.7	6.5
2834	Pharmaceutical preparations	104.2	107.0	114.3	116.4	118.1	121.8	124.0	1.8
2841	Soaps and detergents	107.3	100.9	97.7	101.8	103.3	104.5	3/	3/
2844	Cosmetics and other toiletries	76.1	84.0	86.2	85.2	87.3	94.3	3/	3/
2851	Paints and allied products	99.8	106.5	113.8	121.5	125.6	125.2	128.5	2.6
2869	Industrial organic chemicals, n.e.c.	103.9	87.2	105.3	113.9	112.5	119.5	3/	3/
2911	Petroleum refining	83.7	79.4	81.8	92.5	102.6	113.8	118.8	4.4
3011	Tires and inner tubes	118.1	128.2	136.1	146.8	146.7	151.4	167.8	10.8
3079	Miscellaneous plastics products	98.5	110.1	107.2	110.5	113.0	114.1	3/	3/
314	Footwear	95.6	106.4	103.9	105.7	107.3	109.5	104.5	-4.6
3221	Glass containers	110.1	105.8	108.5	128.0	127.0	138.9	143.0	3.0
3241	Hydraulic cement	91.1	94.0	108.4	125.3	128.3	135.5	142.2	4.9
325	Structural clay products	100.7	102.6	105.4	111.3	112.8	115.6	118.7	2.7
3251,53,59	Clay construction products	97.3	103.3	101.1	110.4	112.6	114.5	116.2	1.5
3251	Brick and structural clay tile	84.3	88.6	85.7	93.4	100.4	98.9	102.9	4.0
3253	Ceramic wall and floor tile	125.9	128.1	126.2	144.0	131.1	140.5	3/	3/
3255	Clay refractories	111.1	100.0	121.6	115.1	114.1	122.9	131.4	6.9
3271,72	Concrete products	88.5	91.0	97.6	99.2	100.5	105.9	3/	3/
3273	Ready-mixed concrete	95.4	90.6	93.7	96.3	97.4	100.1	3/	3/
331	Steel	112.0	90.9	116.8	131.3	139.5	141.8	151.7	7.0
3321	Gray iron foundries	92.7	93.7	98.3	106.8	104.2	107.4	104.8	-2.4
3324,25	Steel foundries	91.6	89.0	89.9	98.8	95.6	100.3	94.3	-6.0
3325	Steel foundries, n.e.c.	90.0	88.4	90.2	103.5	101.0	104.3	101.9	-2.3
3331,32,33	Primary copper, lead, and zinc	118.6	128.0	141.2	148.0	181.5	210.8	221.1	4.9
3331	Primary copper	124.4	128.5	138.3	151.9	189.8	229.2	228.2	-0.4
3334	Primary aluminum	103.8	103.0	111.5	125.4	125.4	134.0	143.5	7.1
3351	Copper rolling and drawing	97.9	106.0	121.1	128.1	122.0	127.2	139.8	9.9
3353,54,55	Aluminum rolling and drawing	96.8	99.2	110.4	116.2	115.9	125.0	141.6	13.3

Indexes of Output per Employee-hour 1/ in Selected Industries
1981-87 and percent changes 1986-87
(1977=100)

SIC Code	Industry	1981	1982	1983	1984	1985	1986	1987 2/	Percent Change 1986-1987
3411	Metal cans	108.1	118.5	120.5	123.0	125.6	126.0	134.3	6.6
3423	Hand and edge tools	95.2	92.8	89.3	90.1	90.6	89.8	3/	3/
3433	Heating equipment, except electric	94.6	102.3	93.2	102.0	97.7	105.0	3/	3/
3441	Fabricated structural metal	98.5	99.5	103.0	107.9	117.7	117.7	3/	3/
3442	Metal doors, sash, and trim	90.4	96.0	99.7	102.8	106.3	104.1	3/	3/
3465,66,69	Metal stampings	101.4	98.1	104.7	110.4	104.7	108.7	3/	3/
3465	Automotive stampings	105.0	106.7	122.3	127.9	120.1	121.8	3/	3/
3469	Metal stampings, n.e.c.	98.0	89.3	89.3	95.1	90.0	95.9	3/	3/
3494	Valves and pipe fittings	105.4	101.3	103.6	105.1	104.5	104.5	3/	3/
3498	Fabricated pipe and fittings	93.5	89.5	87.2	98.0	90.4	91.0	3/	3/
3519	Internal combustion engines, n.e.c.	93.2	82.0	86.8	99.8	102.7	108.5	3/	3/
352	Farm and garden machinery	95.1	94.9	95.1	105.2	101.5	103.0	3/	3/
3523	Farm machinery and equipment	94.1	92.6	92.0	104.6	98.6	95.5	3/	3/
3524	Lawn and garden equipment	101.0	106.9	111.8	111.3	115.7	132.1	3/	3/
3531	Construction machinery and equipment	96.1	88.9	88.2	102.6	104.1	107.1	99.3	-7.3
3532	Mining machinery and equipment	97.8	91.0	91.3	98.5	101.4	103.7	3/	3/
3533	Oilfield machinery and equipment	104.7	98.4	91.8	87.5	80.1	70.1	78.9	12.6
3541,42	Machine tools	96.5	88.0	83.0	93.6	96.7	98.5	101.9	3.5
3541	Metal cutting machine tools	98.9	99.2	81.1	93.3	96.4	105.1	100.2	-4.7
3542	Metal forming machine tools	89.4	85.0	87.6	93.7	96.6	97.1	104.6	7.7
3545	Machine tool accessories	102.0	89.1	83.0	95.4	92.6	95.4	3/	3/
3561,63	Pumps and compressors	102.4	95.9	100.2	106.1	106.8	108.7	3/	3/
3561	Pumps and pumping equipment	101.7	93.1	97.7	104.4	104.4	105.5	3/	3/
3562	Ball and roller bearings	94.3	83.3	86.3	94.4	92.1	95.6	101.2	5.9
3563	Air and gas compressors	106.8	102.0	105.2	109.7	111.9	115.0	3/	3/
3585	Refrigeration and heating equipment	99.4	100.1	100.9	105.5	103.7	101.5	3/	3/
3612	Transformers	106.9	99.6	99.1	97.6	99.3	99.4	94.6	-4.8
3613	Switchgear and switchboard apparatus	99.5	101.3	106.1	107.4	110.6	110.7	109.3	-1.3
3621	Motors and generators	100.4	102.4	104.3	107.9	110.5	112.3	115.9	3.2
3631,32,33,39	Major household appliances	107.6	108.6	117.6	123.6	127.2	134.1	139.2	3.8
3631	Household cooking equipment	105.7	112.6	120.8	131.9	135.6	158.4	168.1	6.1
3632	Household refrigerators and freezers	117.4	116.1	127.1	127.5	136.8	133.5	131.6	-1.4
3633	Household laundry equipment	103.9	105.4	112.2	117.5	118.2	123.1	133.0	8.0
3639	Household appliances, n.e.c.	100.4	94.7	103.7	109.8	110.0	113.1	117.3	3.7
3641	Electric lamps	106.9	108.4	124.8	131.9	126.9	131.1	146.9	12.1
3645,46,47,48	Lighting fixtures	88.7	91.0	96.3	102.2	107.0	113.8	3/	3/
3651	Radio and television receiving sets	133.6	163.9	196.1	236.9	249.8	278.1	300.5	8.1
3674	Semiconductors and related devices	171.6	197.9	211.5	229.2	206.1	210.5	260.1	23.6
371	Motor vehicles and equipment	93.1	96.9	109.6	115.7	121.2	121.7	125.2	2.9
3825	Instruments to measure electricity	111.9	119.2	121.8	133.7	130.4	122.2	3/	3/
	Other								
401	Railroad transportation, revenue traffic	111.5	115.8	141.9	152.6	162.1	178.6	208.3	16.6
401	Railroad transportation, car miles	107.6	110.1	128.9	137.7	138.9	148.2	166.8	12.6
4111,13,414 PT	Class I bus carriers	90.7	98.8	95.4	90.9	87.4	86.8	3/	3/
4213 PT	Intercity trucking 4/	116.3	108.0	130.7	135.1	130.2	134.5	3/	3/
4213 PT	Intercity trucking, general freight 4/	117.2	107.8	136.0	137.6	131.7	140.9	3/	3/
4511,4521 PT	Air transportation 4/	104.9	114.9	126.8	131.7	136.5	138.2	146.4	5.9
4612,13	Petroleum pipelines	86.0	89.2	94.3	104.5	104.9	107.0	106.6	-0.4
4811	Telephone communications	124.4	129.1	145.1	143.0	149.8	161.3	166.1	3.0
491,492,493	Gas and electric utilities	94.4	89.3	88.1	91.4	90.5	89.1	92.7	4.0
491,493 PT	Electric utilities	93.0	89.5	90.9	94.4	93.5	96.2	101.0	5.0
492,493 PT	Gas utilities	98.1	89.0	81.1	83.6	82.1	73.0	74.8	2.5
5251	Hardware stores 5/	107.5	109.2	111.4	121.1	124.6	137.4	149.5	8.8
5311	Department stores	109.9	112.4	119.5	126.6	129.2	135.3	137.2	1.4
54	Retail food stores 5/	97.1	95.5	95.5	96.1	96.6	94.6	92.8	-1.9
5411	Grocery stores 5/	97.9	97.9	98.6	100.1	98.4	96.3	94.3	-2.1
546	Retail bakeries 5/	97.9	90.6	93.0	87.2	81.6	85.5	86.3	0.9
5511	Franchised new car dealers	98.1	100.4	109.4	110.4	109.7	110.7	105.3	-4.9
5541	Gasoline service stations 5/	106.7	111.8	122.5	129.1	134.3	143.9	145.7	1.3
56	Apparel and accessory stores 5/	123.9	126.4	132.9	141.0	146.5	153.7	146.4	-4.7
5611	Men's and boys' clothing stores 5/	116.4	116.6	120.6	127.4	135.0	139.5	135.0	-3.2
5621	Women's ready-to-wear stores 5/	127.8	142.0	151.3	158.3	162.8	176.4	171.9	-2.6
5651	Family clothing stores 5/	132.4	140.7	149.2	145.8	138.5	136.0	130.9	-3.8
5661	Shoe stores 5/	114.2	110.2	107.6	110.1	117.4	125.8	124.0	-1.4
57	Furniture, home furnishings & equip. stores 5/	112.6	109.2	118.4	129.4	133.5	144.6	145.2	0.4
571	Furniture and home furnishings stores 5/	101.2	97.6	104.1	113.1	108.7	115.5	116.0	0.4
572,3	Appliance, radio, television & music stores 5/	132.4	128.7	143.4	155.1	180.0	199.5	199.8	0.2
572	Household appliance stores 5/	114.9	102.0	111.8	139.2	154.6	178.8	185.2	3.6
573	Radio, television, and music stores 5/	140.5	142.4	159.5	165.9	190.2	206.5	204.3	-1.1
58	Eating and drinking places 5/	97.3	96.9	95.3	91.1	87.9	89.7	90.4	0.8
5912	Drug and proprietary stores 5/	107.6	107.9	111.4	106.2	106.5	105.6	105.9	0.3
5921	Liquor stores 5/	104.0	108.1	101.6	98.7	107.1	98.0	91.6	-6.5
602	Commercial banking	90.5	93.2	101.3	104.3	109.7	111.7	3/	3/
7011	Hotels, motels, and tourist courts 5/	91.6	88.8	95.4	102.1	97.5	92.8	88.0	-5.2

1/ Although the output per employee-hour measures relate output to the hours of all employees engaged in each industry, they do not measure the specific contribution of labor, capital, or any other single factor of production. Rather, they reflect the joint effects of many influences, including new technology, capital investment, the level of output, capacity utilization, energy use, and managerial skills, as well as the skills and efforts of the work force. Some of these measures use a labor input series that is based on hours paid and some use a labor input series that is based on plant hours.

2/ Preliminary

3/ Not available.

4/ Output per employee.

5/ Output per hour of all persons.

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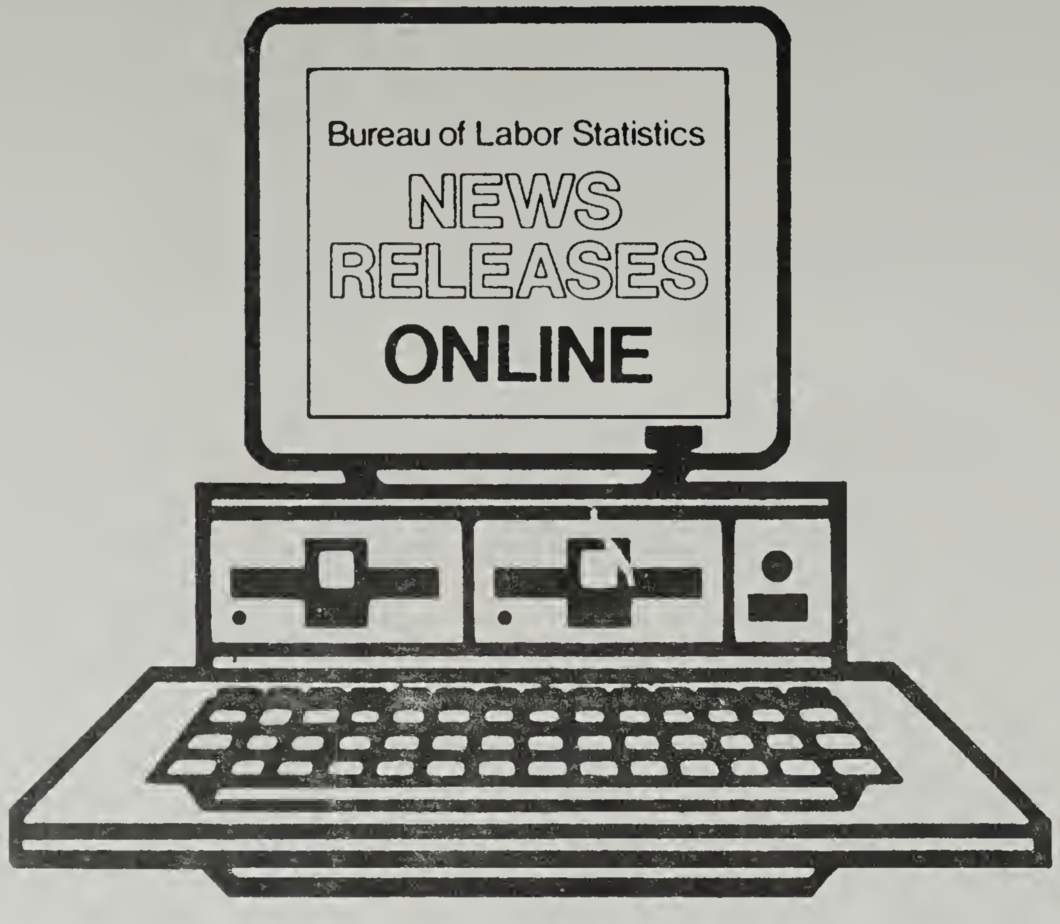

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